

ultium[®] EMG

Wireless Surface EMG with Internal IMU

- Versatile SmartLead Options
- Data Recovery with Lossless Technology
- Lifetime* Battery Replacement

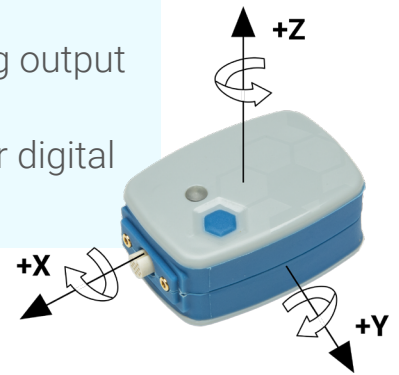
NORAXON[®]

The Ultium EMG Sensor System

Noraxon's Ultium EMG sensor system is a multi-modal device that delivers high-fidelity data and flexible measurement options.

Hardware Features

- Up to 4,000 Hz EMG sampling rate
- 24-bit internal sampling resolution
- $\pm 24,000$ μV EMG input range
- Baseline noise <1 μV
- Shielded cables for minimal artifact
- Software controlled digital filtering
- Enhanced radio frequency communication
- Integrated IMU (16-bit resolution)
- Lossless technology with wireless or post-hoc data recovery
- Internal memory for up to 8 hours of data logging
- Up to 32 channels of analog output
- Mobile device compatibility
- 40 ms low latency mode for digital acquisition



Integrated Movement Technology

Noraxon EMG allows users to integrate with various other recording devices to fit unique applications such as:



Symmetry & Coordination Tests



Average Activation Patterns



EMG Amplitude Analysis



Pelvic Floor Therapy



Biofeedback Training



Gait Analysis



Isokinetic Testing



Engineering

Versatile Smartleads

The patented SmartLeads enable our system to convert the EMG device into a highly adaptable sensor capable of collecting diverse kinesiological data.

ACCELEROMETER

Detect accelerations up to 400 g.

ANALOG

Wirelessly capture analog signals.

BIOMONITOR

Capture ECG, heart rate, and respiration.

FINEWIRE

Capture intramuscular activity.

FLEXIFORCE

Measure force between two surfaces.

FOOTSWITCH FSR

Detect foot contact events.

GONIOMETER

Measure 2D angles.

HAND DYNAMOMETER

Measure isometric grip force.

LINEAR FORCE

Measure push and pull forces.

ULTIUM INSOLE

Assess plantar pressure distribution.



All-in-One Biomechanics Software

Seamlessly collect and combine a variety of data within a unified software platform. From real-time collection to post-processing and reporting, everything works together in one environment.

- Comprehensive signal processing tools
- Customizable analysis reports
- Multi-device synchronization
- Multiple data export formats
- HTTP & UDP streaming functionality



Device Integration



Free Ultium EMG battery replacement for up to 10 years

TECHNICAL DATA

POWER AND SYNCHRONIZATION

Sensor

- Li-Polymer battery
- 8-hour operational runtime
- 3-hour charge time

Receiver

- Power and data transfer by USB
- Sensor charging by 5V PSU
- Accepts 2-5 V TTL sync input

DATA TRANSMISSION AND OUTPUT

- 2.4 GHz wireless and Bluetooth Low Energy
- 30 m wireless transmission range
- 40 ms low latency mode for digital acquisition
- 16-bit analog output with adjustable gain
- Fixed 300 ms analog output latency

DATA ACQUISITION

- Selectable sample rate at 2000 or 4000 Hz
- Selectable high-pass cutoff at 5/10/20 Hz
- Selectable low-pass cutoff at 500/1000/1500 Hz
- No notch (50/60 Hz) filters
- $\pm 24,000 \mu\text{V}$ input range
- 24-bit ADC with dynamic resolution
 - 0.3 μV resolution for 0 - 5,000 μV
 - 1.1 μV resolution for 5,001 - 24,000 μV

EMG SIGNAL QUALITY

- $< 1 \mu\text{V}$ RMS baseline noise
- $> 100 \text{ dB}$ CMRR

INTEGRATED IMU

- 16-bit resolution
- 200 Hz sample rate (2000 Hz EMG)
- 400 Hz sample rate (No EMG selected)
- $\pm 16 \text{ g}$ accelerometer
- ± 2000 degrees/second gyroscope
- $\pm 4800 \mu\text{T}$ magnetometer

DATA RECOVERY

- 250 MB onboard memory (up to 16 hours of storage)
- High-speed data transfer via sensor dock

SIZE AND WEIGHT

Sensor

- 37x 24.5 x 16.5 mm (LxWxH)
- 14 g

Receiver

- 174 x 92 x 169 mm (LxWxH)
- 590 g

Charger

- 258 x 44.5 x 32 mm (LxWxH)
- 152 g



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